

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 October 2001 (18.10.2001)

PCT

(11) International Publication Number
WO 01/76957 A1

(51) International Patent Classification: B65D 5/68

(21) International Application Number: PCT/GB00/01541

(22) International Filing Date: 5 April 2001 (05.04.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
08023071 6 April 2000 (06.04.2000) GB

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(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GR, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,
LR, LS, LU, LV, MA, MD, MG, MK, MN, MW, MX,
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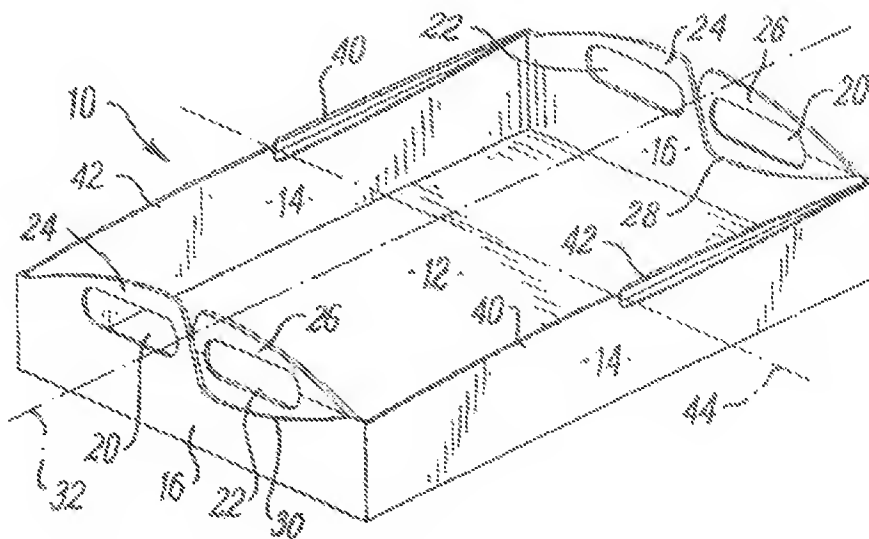
(84) Designated States (regional): ARIPO patent (GM, GM,
KH, LS, MW, MZ, SI, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report
before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guide
to the Codes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: CONTAINER WITH A HANDED FLAP LID



(57) Abstract: A container and lid arrangement is provided, in which the lid is substantially identical to the container. The container (10) includes (2) opposed ends (16), each end having a pair of extensions (24, 26) with a wall thickness approximately half that of the end wall (14), the planes of the extensions being parallel but spaced from each other. Each extension (24, 26) includes an aperture (20, 22) which, in use, forms a handle. The outline of the extensions (24, 26) and the apertures (20, 22) have rotational symmetry about an axis (32) so that by rotating the container (10) about the axis (32), the container forms a lid to fit with another identical container with the outline of the apertures (20, 22) in the extensions substantially aligned. A handle placed through an aperture in one of the lid or in the container will therefore also pass through an aperture in the other, ensuring that both are fitted together.

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CONTAINER WITH A HANDLE AND LID

The present invention relates to containers.

The invention provides a container and lid arrangement in which the container has at least one aperture which forms a handle for lifting the container, and the lid comprises a corresponding aperture which is at least partly aligned with the handle aperture when the lid is in position, to allow a hand to be placed through both apertures when lifting the container and lid, thereby retaining the container and lid together.

The rim around the lid is preferably complimentary with the rim around the container. The rims may be substantially identical in form and have a symmetry which causes one rim to be complimentary to the other when the one rim is inverted relative to the other. The lid is preferably another container, inverted to form a lid. The container and lid are preferably substantially identical containers, one being inverted relative to the other.

Preferably the container has a handle aperture as aforesaid on each of a pair of opposed walls of the container. There may be handle apertures on each of two pairs of opposed walls. Preferably the handle aperture is one of a pair of apertures which become aligned with the apertures of a corresponding pair of apertures in a lid container. The pair of apertures are preferably symmetrical about a rotation axis about which a container is rotated to be used as a lid, whereby boundaries of the apertures are substantially aligned when the lid is in position.

The pair of apertures are preferably provided on respective upstanding extensions of the container walls. The extensions of a pair of apertures are preferably generally planar in form, and situated in parallel, spaced planes whereby to present planar faces to the extensions of a lid container.

The mouth of the container is preferably defined by boundaries which

are so formed as to fit in complimentary fashion with a lid container.

The container may comprise releasable lock means operable to lock a lid container in position.

The container may comprise a base to which upstanding walls are attached in a manner which allows the walls to be collapsed when not in use.

An embodiment of the present invention will now be described in more detail, by way of example only, and with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a container according to the invention;

Fig. 2 shows the container of Fig. 1, mated with another identical container serving as a lid;

Fig. 3 is a plan view of one end wall of the container of Fig. 1, on an enlarged scale;

Figs. 4a, 4b and 4c are perspective views illustrating how a container and an inverted container are brought together to form a lidded container;

Figs. 5a, 5b, and 5c are end elevations corresponding to the views of Figs. 4a, b and c; and

Figs. 6a, 6b and 6c are side elevations corresponding to views of Figs. 4a, b and c.

Fig. 1 shows a container 10 which has a base 12 from which two relatively long side walls 14 are upstanding, and two relatively short end walls 16 are upstanding. The base 12 and walls 14,16 form an open-topped container, the mouth of which is defined by the upper edges of the walls 14,16. The

container 10 is formed, as will be described in more detail, to co-operate with another identical container to allow one container to be inverted to serve as a lid for the other container, as illustrated in Fig. 2. The container has apertures 20,22 which form handles for the container 10 and become aligned with handle apertures in an inverted container being used as a lid, as will be described. This allows a hand to be placed through aligned apertures in both containers when lifting the container and lid shown in Fig. 2.

In more detail, the end walls 16 each have a pair of apertures 20,22. Each of the apertures 20,22 is sufficiently large to receive the hand of a user, so that a user wishing to lift the container 10 is provided with four handle locations. Each handle aperture 20,22 is formed in a respective upstanding extension 24,26 of the wall 16. However, as can be seen from Fig. 6, each extension 24,26 has a thickness which is only about one half of the thickness of the wall 16. Thus, the extensions 24,26 are each generally planar and co-planar with the wall 16, but of reduced thickness. The planes of the extensions 24 are parallel with the planes of the extensions 26 but spaced from them, as can be seen in Fig. 3. In consequence, the inner face of the wall 16 has a recess 28 over the area of the extension 24, the recess 28 being in the plane of the extension 26. The outer face of the wall 16 has a recess 30 over the area of the extension 26, and in the plane of the extension 24.

The outlines of the extensions 24,26 and of the recesses 28,30 have a rotational symmetry about an axis 32 which extends perpendicular to the walls 16, midway along them and at the same height from the base 12 as the upper edges of the walls 14. The shape and position of the apertures 20,22 also has rotational symmetry about this axis 32. The significance of this symmetry can now be explained with reference to the remaining figures.

Fig. 4a illustrates a container 10 as shown in Fig. 1 and which will be hereinafter called the base container. Above the base container 10, an identical container is illustrated in broken lines at 34, and will hereinafter be termed the lid container. The lid container has been inverted with respect to the base

container, by rotation of one half turn about the axis 32. An end elevation of the situation of Fig. 4a is illustrated in Fig. 5a.

Figs. 4b and 5b show the position as the lid container 34 is brought further down onto the base container 10. A position has been reached at which the extensions 24, 26 are beginning to overlap, as follows. On each end wall 16, the outermost extension 24 is beginning to move down into the recess 30 from above, moving alongside the extension 26 of the base container 10. Simultaneously, the extension 26 of the lid container 34 is moving down into the recess 28 of the base container 10, alongside the extension 24 of the base container 10. Simultaneously, the extension 24 of the base container 10 is moving into the recess 30 of the lid container 34 and the extension 26 of the base container 10 is moving into the recess 28 of the lid container 34.

As the lid container 34 moves further down, the position of Figs. 4c and 5c is reached. In this position, the significance of the symmetry and complimentary shapes and positions becomes apparent. It can be seen that the extensions 24,26 of each container 10,34 mate in fully complementary manner with the respective recesses 30,28 of the other container 34,10 in order to leave a smooth, substantially continuous outer surface to the end walls 16 as they come together, there being two handle apertures provided in this end wall. In Fig. 4c, the lid container 34 is shown in solid lines, the result being a perspective view of the closed container.

Each of these handle apertures is provided by an aperture 20 of one container 10,34, and the aperture 22 of the other container 34,10. These apertures 20,22 will have moved into alignment by virtue of the rotational symmetry described above.

In consequence, a user who wishes to lift the lidded container 34 (Fig. 2) is again provided with four handle locations, as was the case with a base container 10. However, whichever of these handle locations is chosen, the hand of the user will pass through an aperture 20 and also through an aperture 22 on

the other container so that when the handle is gripped to lift the container 38, the base container 10 and lid container 34 will be reliably lifted together. In particular, the user's hand cannot be passed through an aperture 20,22 of the lid container 34 without also passing through an aperture of the base container 10. This ensures that a user will not inadvertently lift the lid container 34 without also lifting the base container 10.

The side walls 14 can now be described in more detail. These have an arrangement of inner and outer upstanding extensions 40,42 which are similar in general form to the geometry of the extensions 24,26. However, the extensions 40,42 do not have handle apertures in this example and are much longer and shallower. However, they have a similar complementary form and a similar rotational symmetry about a horizontal axis 44, perpendicular to the axis 32. Consequently, the top edges of the side wall 14 of the base container 10 will fit closely together with the edge of a side wall 14 of an inverted lid container 34 in a manner essentially the same as has been described above in relation to Figs. 4 and 5. This is illustrated in Figs. 6a,6b and 6c, which show the side walls 14 coming together at the same stages as are illustrated in Figs. 4 and 5. As a result of the fit of the end and side walls, the upper edges of all four walls 14,16 provide boundaries to the mouth of the container which fit in complementary fashion around the whole periphery of the container so that in the lidded container 38, the interior of the container is completely enclosed except in the region of the apertures 20,22.

In an alternative arrangement, the upper edge of each side wall 14 could be straight (without extensions 40,42). Alternatively, the extensions 40,42 could be more pronounced and could incorporate handle apertures in the same manner as the end walls 16, providing additional handle locations which again exhibit the properties of ensuring that the lid container 34 will not be lifted without the base container 10.

In a further alternative, the upstanding extensions of the side or end walls (or both) could be separated by a middle section which is flat-topped to meet the corresponding surface of another container in simple face-to-face

abutment, when the containers are brought together.

It is envisaged that the handle arrangements will provide adequate certainty that the lid and base will both be lifted together, but additional locking arrangements could be provided at appropriate positions such as the locations 46 illustrated in Fig. 2, so that when a container is inverted to form a lid, complementary lock halves will come together.

A further modification which we envisage is to provide a hinged connection between the walls 14,16 and the base 12, and to provide interlock arrangements between the adjacent ends of the walls 14,16. These arrangements could be provided in the manner described in our British Patent No. 2303616. Collapsible side walls allow the container to be more compact when not in use.

The symmetry and geometry of the embodiment described above result in a lidded container 38 which is indistinguishable from the same container when turned upside-down. Furthermore, any container 10 can be used either a base container or as a lid container. This provides great flexibility within a system which consists of a large number of these containers, particularly if there are some applications in which lids are required, and others in which goods can be exposed by using the containers as open-topped trays.

A commercial example can illustrate this versatility. Bananas are commonly transported in bunches, laid in containers with the convex face of the bunches uppermost. This is helpful in preventing degradation of the goods during transport and storage. However, it is conventional for bananas to be displayed in shops in the inverted position, with the concavity of the bunches uppermost. Using containers of the present invention, banana bunches can be laid in the base container 10 in the orientation required for transport and storage, and then covered by a lid container 34, as described. When the lidded container 38 reaches the retail premises, it is a relatively easy matter to invert the whole container, thereby inverting all of the banana contents in one

movement. This operation is secure against spillage by virtue of the handle arrangements which have been described. Once the container 38 has been inverted, the uppermost container (formerly the lowermost container) can then be removed to expose the bananas in their appropriate orientation for retail sale.

However, it is not essential for the container and lid to be identical. They could, for instance, be containers of different depth but having identical rims of the type described. The lid could be sufficiently shallow to be usable only as a lid, but with a container of any depth. A container of one depth could be used as a lid for a container of the same or different depth.

In the examples above, the symmetry causes the handle apertures to come full into alignment with each other, so that the area of one aperture is co-terminous with the area of the other. However, it will be readily understood that a hand can be introduced through both apertures even if they are only partly aligned, so that at least part of the area of one is aligned with at least part of the area of the other. However, this latter possibility is likely to lead to some relative movement between the container and the lid as they are lifted, which may be undesirable in many applications.

Containers according to the invention can be made of synthetic plastics materials, for instance by injection moulding, in the interests of hygiene, ease of cleaning, reusability and robustness. However, other materials and manufacturing techniques could be used.

Many variations and modifications can be made to the apparatus described above, without departing from the scope of the invention. In particular, many different shapes and forms for the handle apertures and extensions can be devised while still retaining the functional benefits. The invention is not limited to the provision of handle apertures in pairs. In an

alternative, a single handle aperture could be centred on the axis 32, formed in a single extension adjacent a single recess. A similar single extension and recess could be provided at the opposite end of the container, but in this arrangement, the containers would need to be rotated about the axis 44, rather than the axis 32, in order to allow identical containers to be used as lids for each other. Many different shapes of aperture, extension and recess could be devised. At least the aperture 22 may be either a through aperture as shown and described above, or the entrance aperture to a concavity into which the ends of the fingers may be placed.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A container and lid arrangement in which the container has at least one aperture which forms a handle for lifting the container, and the lid comprises a corresponding aperture which is at least partly aligned with the handle aperture when the lid is in position, to allow a hand to be placed through both apertures when lifting the container and lid, thereby retaining the container and lid together.
2. An arrangement according to claim 1, wherein the rim around the lid is complementary with the rim around the container.
3. An arrangement according to claim 2, wherein the rims are substantially identical in form and have a symmetry which causes one rim to be complementary to the other when the one rim is inverted relative to the other.
4. An arrangement according to any preceding claim, wherein the lid is another container, inverted to form a lid.
5. An arrangement according to claim 4, wherein the container and lid are substantially identical containers, one being inverted relative to the other.
6. An arrangement according to any preceding claim, wherein the container has a handle aperture as aforesaid on each of a pair of opposed walls of the container.
7. An arrangement according to claim 6, the container having handle apertures on each of two pairs of opposed walls.
8. An arrangement according to any preceding claim, wherein the or at least one of the handle apertures is one of a pair of apertures which become aligned with the apertures of a corresponding pair of apertures in a lid container.

9. An arrangement according to claim 8, wherein the pair of apertures are symmetrical about a rotation axis about which a container is rotated to be used as a lid, whereby boundaries of the apertures are substantially aligned when the lid is in position.
10. An arrangement according to claim 8 or 9, wherein the pair of apertures are provided on respective upstanding extensions of the container walls.
11. An arrangement according to Claim 10, wherein the extensions of a pair of apertures are generally planar in form, and situated in parallel, spaced planes whereby to present planar faces to the extensions of a lid container.
12. An arrangement according to any preceding claim, wherein the mouth of the container is defined by boundaries which are so formed as to fit in complementary fashion with a lid.
13. An arrangement according to any preceding claim, wherein the container comprises releasable lock means operable to lock a lid in position.
14. An arrangement according to any preceding claim, wherein the container comprises a base to which upstanding walls are attached in a manner which allows the walls to be collapsed when not in use.
15. A container and lid arrangement substantially as described above, with reference to the accompanying drawings.
16. Any novel subject matter or combination including novel subject matter disclosed herein, whether or not within the scope of or relating to the same invention as any of the preceding claims.

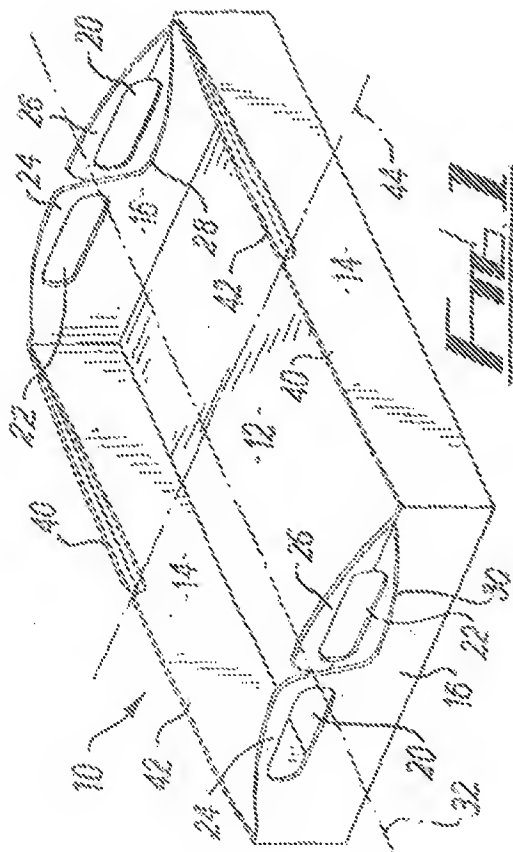


Fig. 1

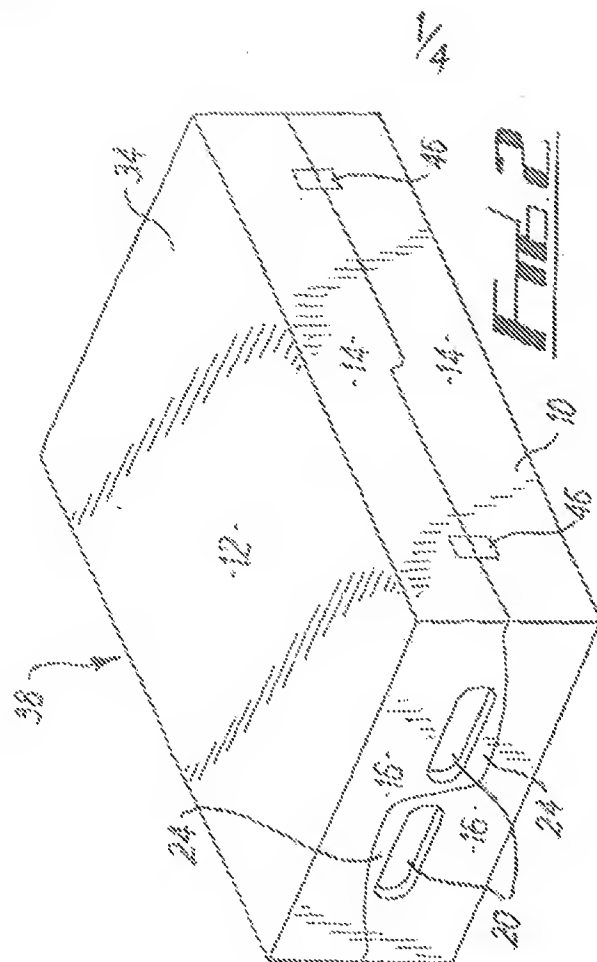


Fig. 2

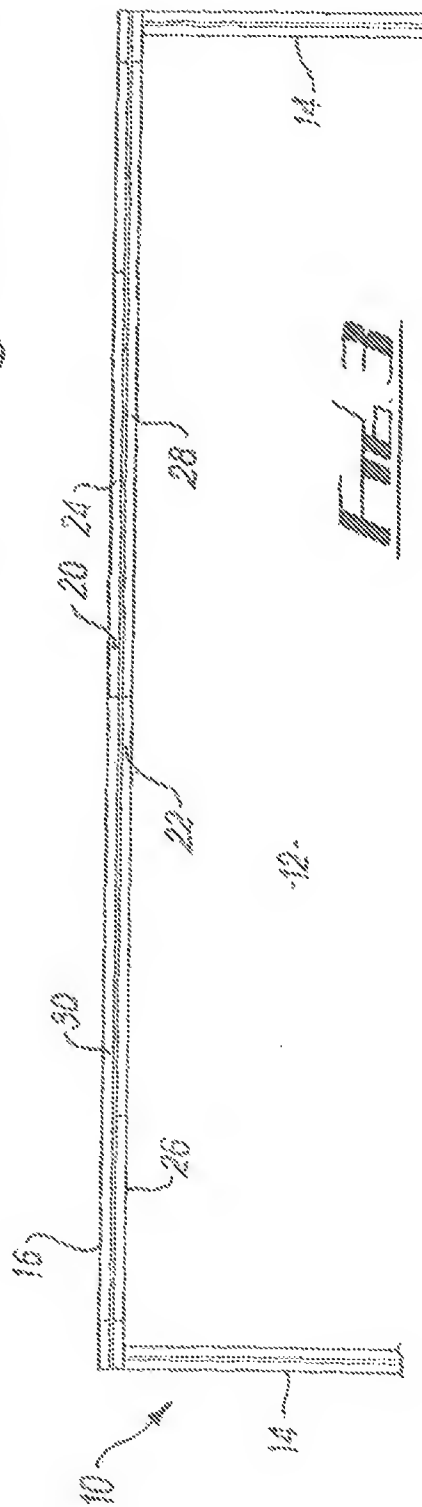
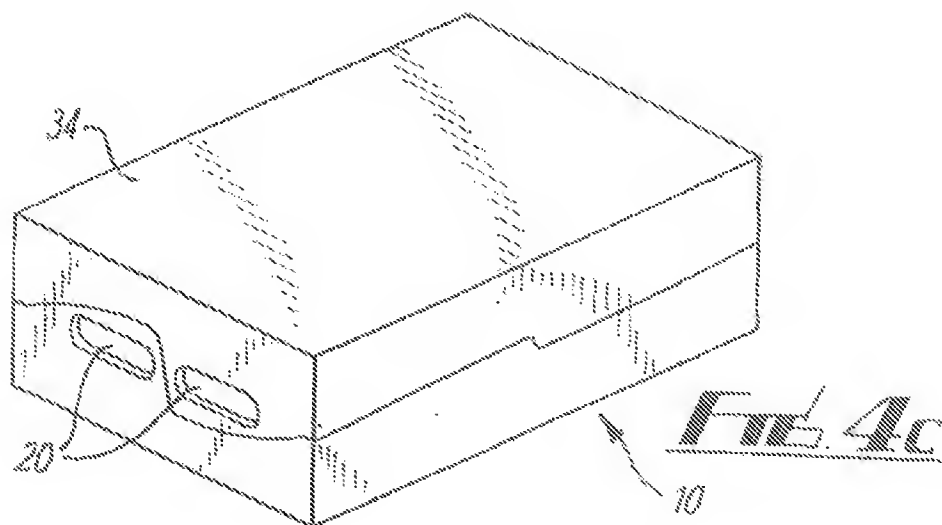
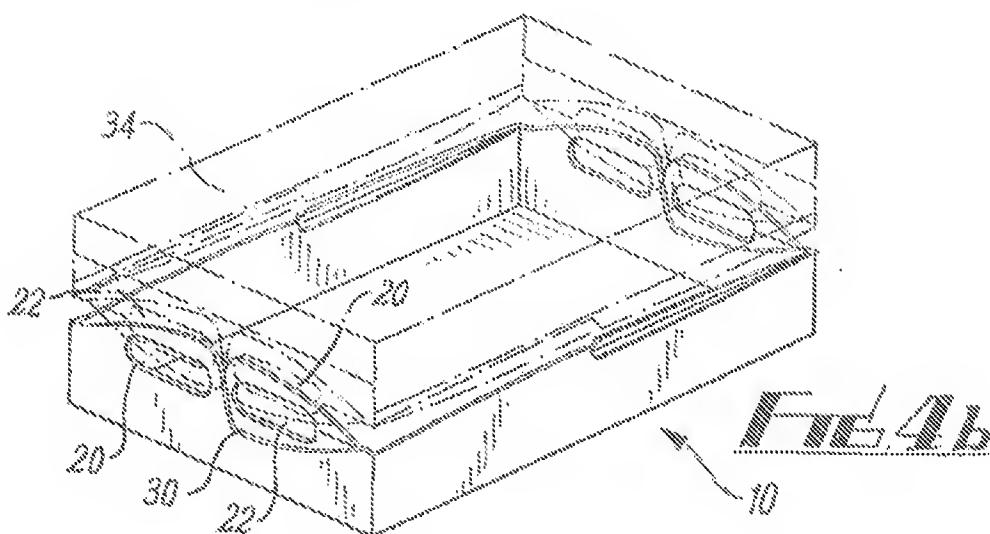
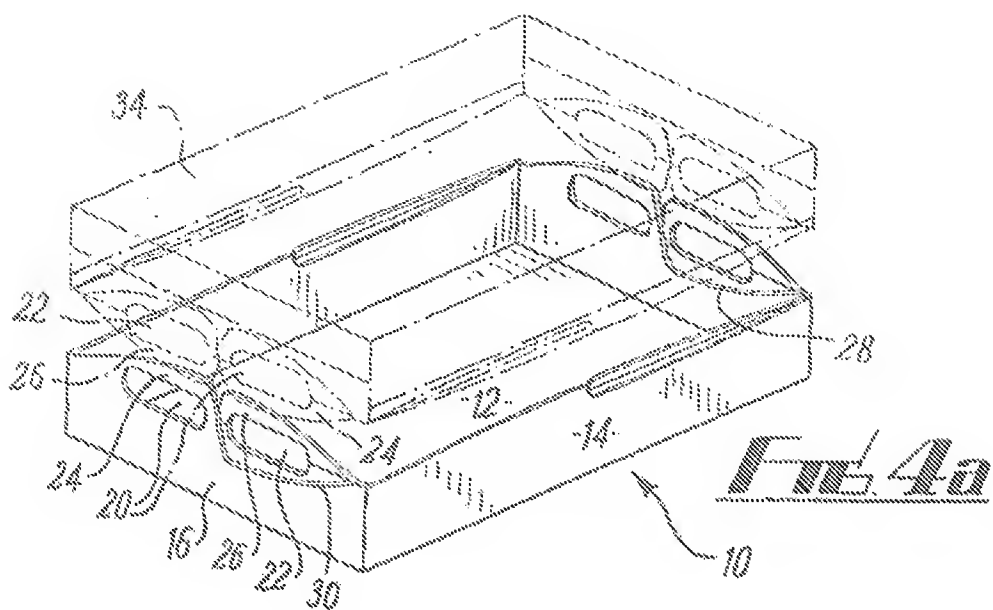
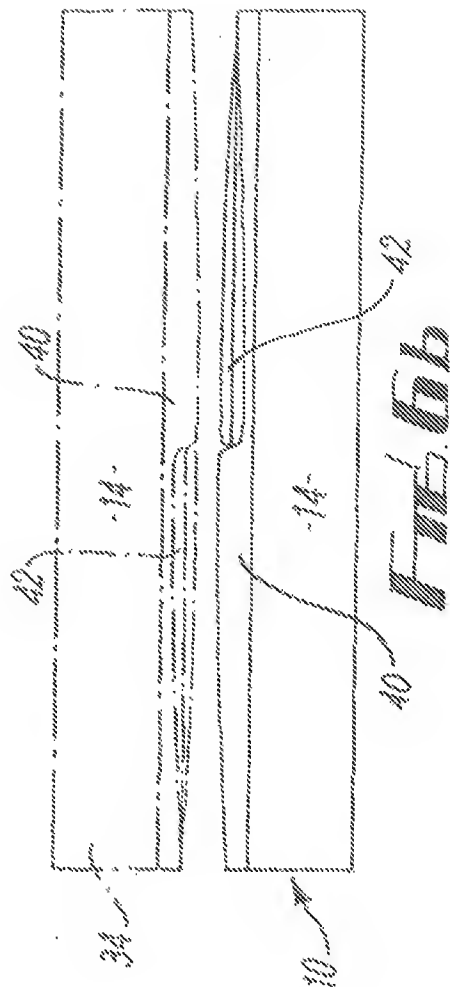
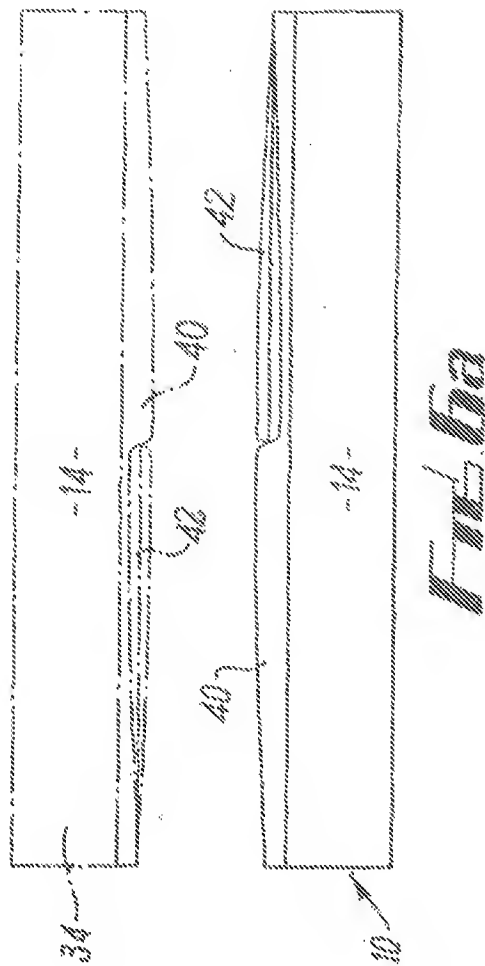
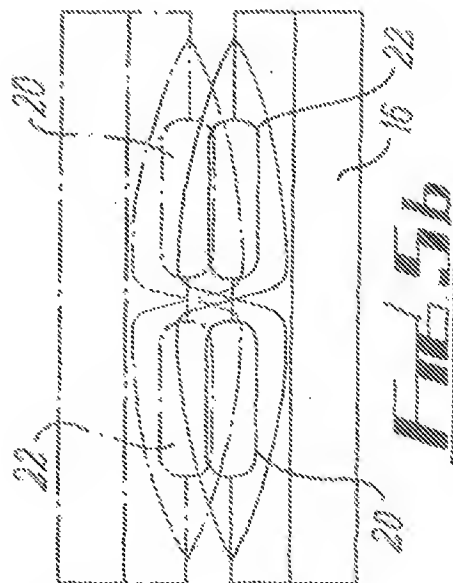
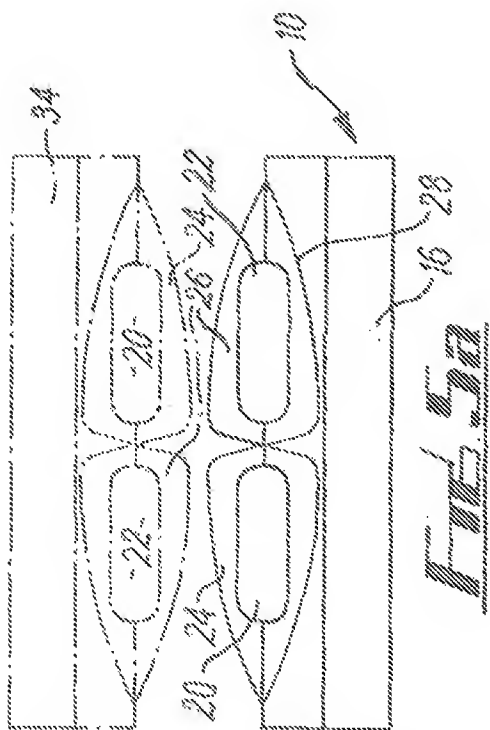


Fig. 3

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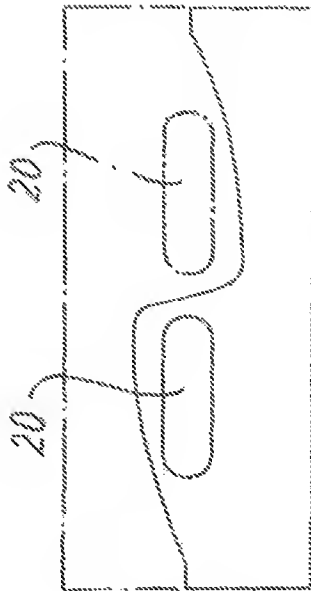


FIG. 5C

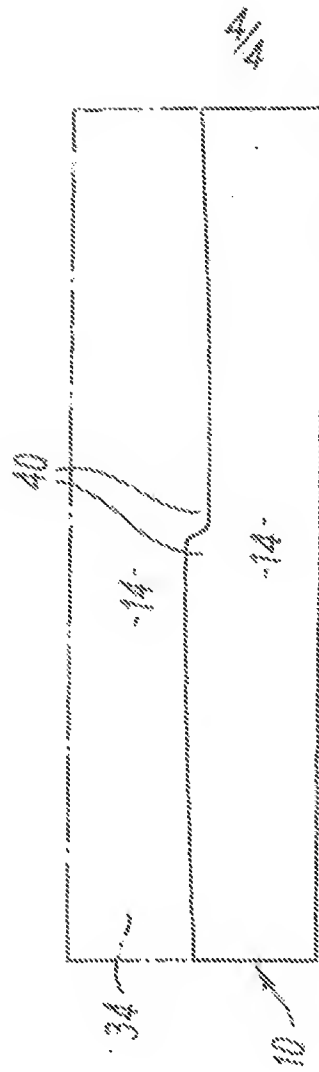


FIG. 6C

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 0605/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 0605

Documentation searched other than minimum documentation in the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Character of document, with indication, where appropriate, of the relevant paragraph	Relevant to claim No
X	US 4 148 427 A (BAKER ROBERT L) 10 April 1979 (1979-04-10) column 1, line 11 - line 62; figures 1,2,4	1-4, 6-12, 14
A	-----	5
P, X	WO 00 46110 A (SWAN LAURENCE ; STEVENS WILLIAM (IE); HAMMERVEST LIMITED (IE)) 10 August 2000 (2000-08-10) page 9, line 29 - page 10, line 7; figures 10E, 10F	1-12
A	US 2 777 630 A (ARVID F. MOBERGER) 15 January 1957 (1957-01-15) the whole document	1
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☒ Further documents are listed in the continuation of box C

☒ Patent family members are listed in annex

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Date of the actual completion of the international search

31 July 2001

Date of mailing of the international search report

07/08/2001

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INTERNATIONAL SEARCH REPORT

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PCT/88 01/01541

D (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No
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A	-----	14, 15

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PCT/GB 01/01541

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